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ABSTRACT

The ways in which potential problems in terms of validity were addressed by a beginning researcher conducting research into teacher attitudes are described. The researcher, a doctoral candidate, studied the beliefs, attitudes, and values of four experienced high school biology teachers. Principles and practices of research were set into place based on the postulates defined by A. Schutz (1990): logical consistency, subjective interpretation, and adequacy. The analysis had no a priori themes or propositional statements based on a theoretical model that needed to be tested. Instead, inductive analytical procedures were developed. In addition, other principles were set in place for the development of propositional statements that subsequently formed the basis for reporting the findings of the study as a series of nested teacher accounts, each grounded in the data. (Contains 2 figures and 21 references.) (Author/SLD)

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Addressing Possible Problems of Validity and Reliability in Qualitative Educational Research

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Abstract

The research reported here details how potential problems in terms of validity and reliability in a qualitative science education study were addressed by the author whilst conducting research into the beliefs, values and attitudes of experienced high school biology teachers. In order to address some of the common concerns pertaining to this research, principles and procedures of research design and data analysis were set in place which addressed the three Schutzian postulates of logical consistency, subjective interpretation and adequacy. This was undertaken in order to gain a phenomenological understanding of what experienced biology teachers saw as the possibilities and problems for the teaching of controversial issues using current biology syllabi. The analysis had no a priori themes or propositional statements based on a theoretical model which needed to be tested. Rather, inductive analytical procedures were developed. In addition, other principles were set in place for the development of such propositional statements which subsequently formed the basis for reporting the findings of the study, that is, as a series of nested teacher accounts each grounded in the data.

Introduction

This paper outlines the rationale and manner in which a beginning researcher confronted some of the issues of validity and reliability whilst a doctoral candidate[1]. Details provided here might be helpful for other beginning researchers. The research was a detailed, longitudinal study which sought to ascertain some of the beliefs, values and attitudes that experienced teachers of biology might have concerning the teaching of biological controversial issues within the context of their normal day to day biology teaching practice. The research design allowed access to teachers' professional craft knowledge about some general aspects of their biology teaching but more importantly it examined and so sought to understand what biology teachers viewed were the problems and possibilities for teaching biological controversial issues as part of their biology curriculum.

Over the last thirty years, the science, technology and society (STS) movement within science education has had as its central focus the notion that science and science teaching is not merely about the transmission of scientific knowledge and understanding by teachers to students, but rather science is also concerned with the social and technological aspects of

[1] The author was a student at Oxford Univeristy Department of Educational Studies from 1993-97.

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the discipline many of which are relevant to students as future users of science. Arguments and justifications for the use in science lessons of biological controversial issues of a moral, ethical and social nature follow along similar lines to those in social science education, that is, controversial issues present knowledge and understanding to students in an interesting, relevant and educationally sound way (Stenhouse, 1970; Stradling *et al.*, 1984; Marsh, 1987, 1988; Singh, 1989; Pence, 1990). Even though much is written in the STS literature about the importance of such a view of science, whereby students are encouraged to seek out party interests and ideologies (Bridges, 1979; Ziman, 1980, 1984; Aikenhead, 1988; Solomon, 1991, 1993; Black, 1993), there are as yet no reported empirical studies which focus on the perspective of teachers and how they might view the teaching of controversial issues in science.

Given the above, the following research questions about the teaching of controversial were formulated.

- What are the possibilities and problems for teachers in using controversial issues to teach A-Level Biology[2]?
- What is the nature of teachers' understanding of the term 'a controversial issue' and their perception of its educational value?
- Given A-Level Biology teachers' understanding of the term 'a controversial issue', what opportunities, if any, do these teachers identify for using controversial issues to teach A-Level Biology?
- In what ways and to what extent have teachers' perceptions of these opportunities been affected by the A-Level Biology teaching context and by their own personal and epistemological beliefs, values and attitudes?

Each of these four questions were explored with a small group of teachers currently teaching A-Level Biology. How answers to each of these questions were sought is now discussed.

The Research Strategy

The research strategy conceptualised and adopted was that of an intervention - a collaborative, wholly negotiated venture between each participant and the researcher, through the development, implementation and subsequent reflection of one or more lessons addressing a specific controversial issue. The intention of the study was to explore and so develop a phenomenological understanding of what experienced A-Level Biology teachers perceive were the problems and possibilities for using controversial issues to teach biology. Teachers were conceptualised as expert practitioners, the major actors and mediators between the A-Level Biology curriculum and their students.

Moreover, it was hypothesised that undertaking the intervention over an extended period of time would enhance the chance of gaining access to revelations about the thinking of biology teachers given that such 'crucial revelations are much more likely to emerge from chance incidents, extended comments, and both informal and formal gatherings' (Bryman

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[2] In England, students wishing to gain entry into universities usually undertake two years of post compulsory schooling and present themselves for a series of formal external examinations known as the A-Levels. A-Level Biology is one subject which students might select - others in the sciences include, for example, A-Level Chemistry and in the humanities A-Level English.

and Burgess, 1994; p. 250). Unlike more traditional intervention studies, notably of the process-product genre which seek to quantity for example specific improvements in student learning, the intervention in this study was atypical. Its purpose was not to evaluate the success or otherwise of the intervention in changing teachers' minds about the use of controversial issues or to quantify students' success in understanding biological concepts. Rather, it was to provide windows of opportunity whereby teachers could articulate their thinking about the use of controversial issues and the teaching of biology, an articulation grounded in the reality of their normal biology teaching practise (Glaser & Strass, 1967). Therefore, in order for this to occur principles were devised to guide both the development of the research design and the analysis of the data.

Principles of Research Design

Several factors were thought important for the success of the research design, each of which was addressed before data collection began.

Principle 1: The Identification and Removal of Surface Constraints

These were hypothesised to be constraints which might hinder the teaching of controversial issues and so needed to be identified and, if possible, removed early in the data collection phase. This would enable the teachers to teach a controversial issues lesson and the researcher to gain access to any deeper constraints should they exist. The first design principle was thus.

Surface constraints need to be identified, effectively addressed and if possible removed for each participant in order to implement the intervention and so enable the participants to articulate their deeper concerns, if any, about using controversial issues in the teaching of A-Level Biology.

Principle 2: Relevance of the Study to Teachers

Given the nature of the intervention and the syllabus with which teachers were working, it was important that the intervention cause minimal disruption to both teachers and students. For this reason the second principle was that:

The proposed lesson has to fit both the A-Level Biology syllabus used by each participant and with what participants are teaching at the time of the intervention.

Principle 3: The Adoption of a Phenomenological Stance

This was the third principle and was thought essential if the research was to access teachers subjective meanings of the context of their teaching. For this reason:

Teachers in this study are conceptualised as experts of their own teaching practice and therefore given the status of someone whose contributions are valued for their clear, rational, considered and logical perspective.

Principle 4: The Interaction between the Teacher and the Researcher

The design challenge here was to gain the best possible access in order to answer the research questions and so the researcher not only conceptualised teachers as expert practitioners but also needed to work collaboratively and co-operatively with each participant over the duration of the study.

The interaction between each teacher and the researcher is to be supportive of the needs of the teacher and extend over a period of time.

Principle 5: The Implementation of the Controversial Issues Lesson

Even though teachers might be willing to participate, they might not concede both preparation and lesson time beyond a small number of lessons, unless they themselves thought otherwise.

The teaching of the controversial issue takes place over one or two lessons.

Principle 6: The Role of the Researcher

Here the question was which role(s) the researcher ought to adopt in order to achieve the above five design principles. Three roles were thought appropriate - associate lesson planner, non-participant observer and colleague.

The researcher's roles in this study are to access, collect and collate lesson resources requested by teachers and present them for comment, and to act when appropriate as an associate lesson planner, non-participant observer and professional colleague.

Principle 7: Lesson Ownership and Control

If the researcher was to collect all the resources, teachers might well experience a loss of lesson ownership and control. This potential problem would be overcome if the controversial issues lesson fitted in with what teachers were doing at the time. Teachers were free to reject, modify or accept any of the resources. Data was collected at the teachers' convenience.

Teachers in this study are in control of all matters dealing with the choice of controversial issue, the selection of relevant resources, the planning, organisation, timing and subsequent implementation of the lesson, and the researcher's visits.

Therefore, the intervention needed to be non-aggressive, collaborative and flexible in terms of teacher needs (Principles 1,3,6) and minimise any potential disruptions to the otherwise normal biology teaching program (Principles 2, 4 5, 6, 7). Because the researcher was interested in the extent to which teachers had or were currently using controversial issues in their biology teaching, experienced teachers of no less than three years senior biology teaching were chosen. For reasons of practicality four teachers were selected and each intervention was of 2-3 months duration - sufficient time it was thought to collect data, undertake preliminary analysis and establish appropriate field relations.

Data Collection

The major form of data collection was the semi-structured interview with teachers and audio-tape transcripts of controversial issues lessons which both formed the substantial and substantive portion of data, along with field notes and lesson observation notes. The interviews were designed to gain an understanding of teachers' thinking about the use of controversial issues and - if at all - what opportunities might exist for their use in biology teaching. Therefore, interview procedures needed to be flexible, allow for the accommodation of emergent issues and detect data inconsistencies. The latter two were further investigated in subsequent interviews.

The validity and reliability of semi-structured interviews in terms of defensible knowledge claims has been argued by Lythcott and Duschl (1990).

> The clinical interview method, and its modifications, have proved to be most fruitful for generating rich data. When used with a conscious effort toward sound argumentation, with attention to the warrants, and a directed effort to find the authority, the legitimacy in the backings for them, such data can yield defensible claims. (p. 459)

However, such claims cannot be made in respect of fieldnotes and lesson observation notes since this data are the researcher's interpretations of what transpired not what was actually spoken by teachers either in interviews or during the controversial issue lesson. For as Miles and Huberman (1994) point out spoken data is better than that from field notes since each participant is 'knowledgeable, close to the event, action, process or setting' (p. 268) and so in order to ensure that the interpretation of data was both reliable and valid the approach adopted was as follows:

> (to) self consciously set out to collect and double-check findings, using multiple sources and modes of evidence, the verification process will largely be built into data collection as you go. *(ibid.*, p. 267)

The data collection involved four phases (Figure 1) and were in occurrence:

The Pre-Lesson Interview Phase

The purpose of this initial phase of data collection was threefold - to allow teachers to raise professional concerns about A-Level Biology teaching albeit outside of classrooms, to access teachers more general views about biology teaching and their use of controversial issues and finally, to develop a controversial issues lesson which married with what teachers were currently teaching their students. Four such interviews were conducted.

The Controversial Issue Phase

This phase was an opportunity for the researcher to further explore participants' thoughts about the practicalities of controversial issues lessons and to observe teachers and students in less familiar learning contexts. The controversial issues addressed by each of the four participants were organ transplantation, infertility, diabetes and animal experimentation. Apart from one of the teachers who had used controversial issues beforehand, such lessons were a novel experience. What was important was not necessarily the dialogue between teachers and students themselves in the classroom but rather teachers' commentaries in the following phase. In retrospect, the controversial issues phase was a catalyst for teachers' discussion with the writer.

The Post Lesson Phase

This phase involved two separate time frames - the post-lesson interview which was conducted immediately after the lesson where teachers were invited to comment on what had occurred in the lesson and the second, the post-post-lesson interview, conducted some two weeks after the lesson when teachers were asked to further reflect on the lesson and comment upon various lesson segments. As this was the final interview before detailed data analysis began, it was important that any further information or clarification be sought from each participant. Although labour and time intensive, in terms of transcription and preliminary analysis, any further delay might well have resulted in considerable memory loss on the part of the teacher and the researcher.

The Proposition Phase

This interview was conducted after all of the data had been analysed and before each of the four teacher draft accounts had been written. The purpose of this phase of data collection was as a source of respondent validation, more substantial than that undertaken during the pre-lesson interview phase. In this interview, teachers were invited to comment on a series of theoretical statements termed propositions, grouped under propositional themes, constructed by the researcher from fine grained analysis of the data. These propositions are what Schutz (1990, p41) terms the *homunulus* or the essence of the inner core of the actor. Teacher comments on these propositions were incorporated into the final teacher accounts. To illustrate, one such proposition concerned a participant's view of controversial issues:

> Teacher Z believed that controversial issues teaching was possible within her A-Level Biology teaching but only as one off, short, distinct lesson activities the value of which lay within the domain of students' social skill development, not in terms of developing biological content knowledge and understanding.

Four propositional themes emerged - the A-Level Biology teaching context, views of science/biology, teaching students the A-Level Biology course and the teaching of controversial issues in relation to A-Level Biology. It could well be argued that the delay of some twelve months between this interview and the post-post lesson interview might be questionable in terms of teachers' thinking. However, this did not appear to be the case as evidenced in the few alterations made by teachers to the list of propositions and the ease with which they engaged with their propositions.

Data Analysis

The principles and procedures for data analysis sought to meet Schutz's three postulates of logical consistency, subjective interpretation and adequacy through the development of second–order constructs termed *propositions*. The process of data analysis required the development of:

> specific methods for the interpretation of the subjective meaning the observed acts have for actors.
>
> (Schutz, 1990, p.27)

Therefore the goal was to interpret the subjective meaning of the substantive data via the development of propositions which validly encapsulated the beliefs, values and attitudes of each participant with respect to the teaching of controversial issues. In addition, data analysis had to develop:

> a method in order to deal in an objective way with the subjective meaning of human action and that the thought objects of the social scientist have to remain consistent with the thought objects of common sense, formed by men in everyday life in order to come to terms with social reality.
>
> (*ibid.*, p. 43)

For the purpose of this research, proposition needed to be teacher–specific, reveal some of the thinking about the teaching of controversial issues held by participants and, in terms of 'common sense', be understandable to other A-Level Biology teachers. In terms of validity and reliability concerns dealing with the propositions, these were addressed by the researcher as an on-going part of both data collection and analysis. Clarification and elaboration was sought throughout each phase of data collection and via the final drafts of accounts presented to teachers for comment. In all cases, changes were made when requested by each participant.

Since the purpose of data analysis was to explore the perspective of each participant, all data except social small talk was subject to analysis. Any themes which might have emerged from this data was defined in the data and any sorting of data, for example in the form of categorisation, had to assist in its interpretation. This formed the basis for the development of propositions which were grounded in the data, mutually exclusive and reflected the essence of the data. Initial analysis – rereading and relistening of transcripts and audiotapes – led to the construction of a multi-stage approach based on data reduction, categorisation and conclusion clarification (Miles and Huberman, 1994). It was not until this preliminary analysis was completed that an alternative approach was used which more appropriately allowed for 'thick' analysis. Four major events, each discrete analytical episodes, were conceived– data familiarisation, data sorting, construction of propositions and the development of the accounts – the latter two occupied considerable intellectual effort and time.

Data familiarisation involved three stages – the transcription phase which allowed the researcher to reread verbatim transcripts and to note points of clarification and/or points of further potential interest; the interview map (Figure 2) which displayed key words and descriptive phases identified in the previous phase an finally, the interview story which narrated in a more formal way tentative interpretations of the data for each interview and controversial issues lesson.

Sorting the data involved the construction of an *n* x *n* matrix (Miles and Huberman, 1994) which allowed for additional data familiarisation, data reduction, data storage and data retrieval. It was not used for categorisation. Rather, the matrix allowed for emergent themes to arise many of which had previously been mere tentative ideas or points of interest. To illustrate, for one participant Teacher X, eleven themes emerged for the data – one such theme was entitled 'What Teacher X likes to teach' and was defined as follows:

> *This emergent theme refers to what it is about teaching which for Teacher J is rewarding both professionally and personally. It refers to the content this participant likes/does not like to teach, the resources she prefers to use, the students and the classes which she enjoys teaching, the rationale for how she believes science/biology courses have been constructed and the ways of teaching with which she feels most comfortable.*

The advantage of the matrix was that it could provide thick, dense, succinct representations of each interview in cells pertaining to each emergent theme. Even though its purpose was not conceptualised as a primary tool for the formulation of propositions, the matrix did alert the researcher to the potential difficulties in coming to understand the subjective meaning of the data and the need to develop propositions which would encapsulate the data.

Construction of the propositions was set within the context of two series of principles – principles for the initial development of propositions and principles for the testing and modification of such principles. In terms of initial development, each proposition reflected the meaning of the actions of each participant, with respect to the teaching of controversial issues and was supported by evidence found within the data. There was no restriction on the number of such propositions. With regards to testing and modification four strategies could be employed - existing propositions could be strengthened if, on examination of the data, new supportive data was found; propositions could be weaken if less supportive data was allocated to an existing proposition; propositions could be refuted and removed if found to have no supporting data and finally, propositions could be subsumed by others if supportive evidence was found to be wholly located within another proposition. Once an initial set of propositions was developed for a participant, the entire data was examined for supporting or refuting evidence. This resulted in the modification and collapse of some propositions each of which was then rewritten in readiness for the propositions interview. As already mentioned, this interview sought respondent validation of the analysis so far. What was vital at this point in data analysis was the degree to which the Shutzian postulates had been addressed, the success of which could be seen in the level of support given by participants to their specific propositions. Apart from minor changes, no significant changes were needed.

Development of the accounts was the final stage of data analysis. Draft accounts incorporated both the researcher's theorisation of each participant's beliefs, values and attitudes about the use of controversial issues and what they saw were the possibilities and problems for their use in A-Level Biology classrooms. These accounts were specific and sent to each teacher for comment. The final accounts which incorporated participants' comments were not forwarded – unlike the drafts these were not idiosyncratic and reflected both similarities and differences between teachers.

Reflection on the Process of Data Collection and Analysis

This section reflects upon the process of data collection and analysis. Two questions will be addressed - first, in terms of what sorts of generalisations might be drawn from the approach outlined above and second, whether the time spent was appropriate given the desire the adopt a phenomenological stance.

Given that the sample size was small, four experienced A-Level Biology teachers, there were common features which could well be useful in understanding how other A-Level Biology teachers might view the teaching of controversial issues. However, as Hammersley (1990) indicates considerable care and attention needs to be given to how such features are presented as generalisations:

> Assessing the validity of such generalisation is an added task over and above the assessment of the claims themselves. (p.31)

Essentially, the generalisations made in this research were not of a statistical nature but rather they were naturalistic generalisations intended to have meaning for and be helpful to other A-Level Biology teachers, indeed possibly other biology/science teachers, a point strongly argued by Stake (1995) in his defence of single case study research:

> ... single cases are not as strong a base for generalizing to a population of cases as other research designs. But people can learn much that is general from single cases. They do that partly because they are familiar with other cases and they add this one in, thus makings lightly new groups from which to generalise, a new opportunity to modify old generalizations. (p. 85)

With this in mind, one such generalisation which was made in relation to this study was that – the amount of biological content knowledge and confidence in the adequacy of that knowledge along with a view of biology as a dynamic, innovative, socially and technologically relevant discipline would seem to facilitate the ease with which teachers might incorporate the use of controversial issues into their classrooms.

The second question which might be asked is whether judicious time and energy was spent on the research process in terms of both the desire to adopt a phenomenological stance - sensitive to the perspective of each participant - and the researcher's aim of accessing the possibilities and problems for the use of controversial issues in A-Level Biology classrooms. First, the collection and collation of resources for the controversial issues lesson, along with the need to prepare an interview schedule and undertake preliminary analysis of each interview before each lesson, was labour intensive and time consuming. Each of these was thought essential if appropriate field relationships were to be established and maintained for the duration of the study. Second, data analysis and the construction of teacher accounts sensitive to the similarities and differences between participants took many months to complete. In retrospect this was not surprising given the inexperience of the researcher and her often real concern as to whether the teacher-specific propositions being developed would indeed be recognisable to participants in both the propositions interview and the draft accounts.

Even though frustrating in terms of time, the research approach outlined in this paper did in some way achieve the aim of the study - to understand not only what it means to be an A-Level Biology teachers but more importantly what possibilities and problems exist for teachers who might wish to incorporate the use of controversial issues into their classrooms. Since there were so few substantial changes requested by teachers either to their specific propositions or to their respective accounts, the researcher felt some degree of confidence in the findings of the study. Since the completion of this study, several computer packages have become available which no doubt will prove to be time and cost effective. Nevertheless, what remains of paramount importance for this research approach is that the researcher remain intellectually close to the data.

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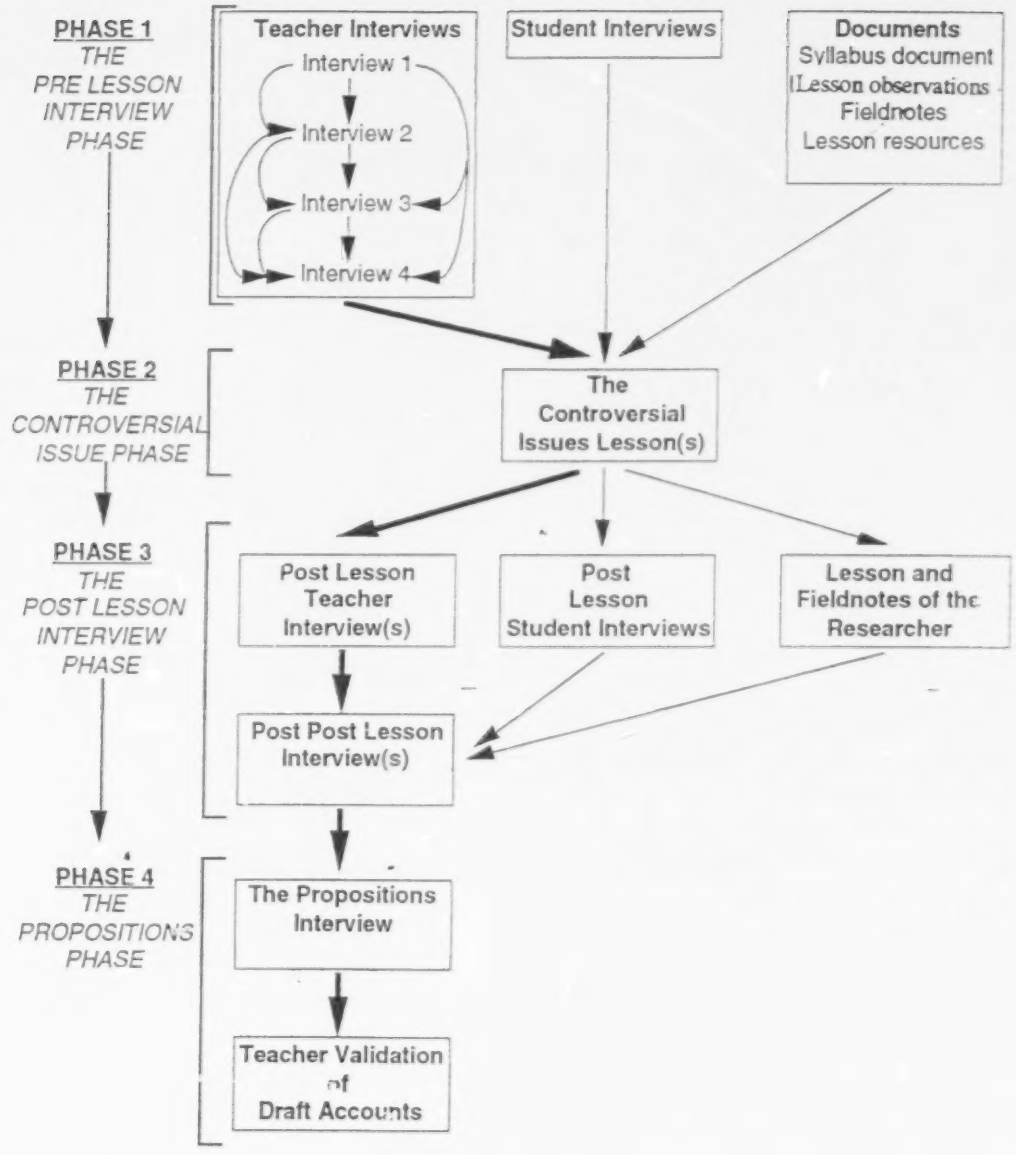
Figure 1:

The four phases of data collection arranged in chronological order



Key: ——▶ indicates substantive data used for analysis

——▶ indicates data used to enrich interviews and teacher accounts

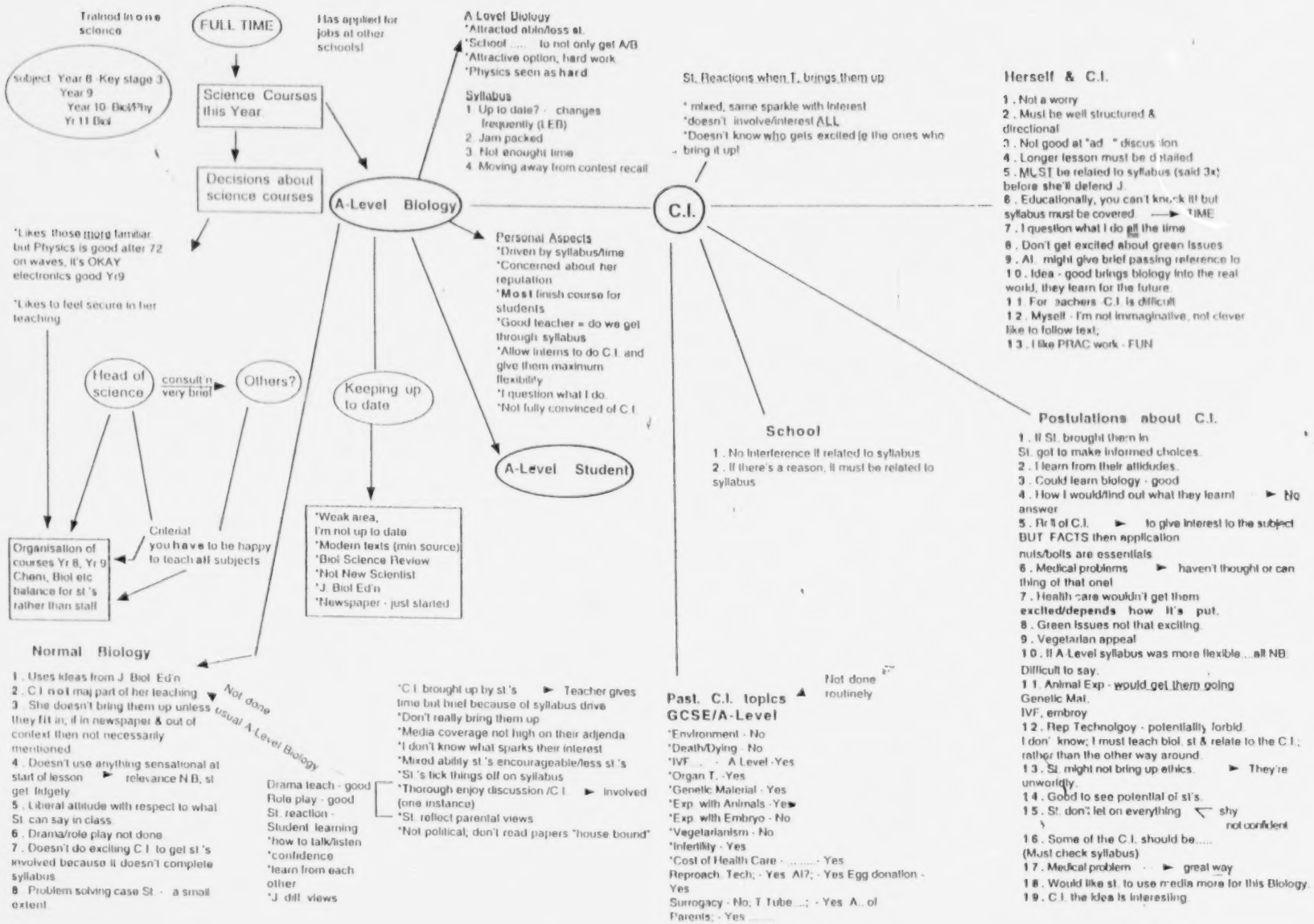

Trained in one science
FULL TIME
Has applied for jobs at other schools!
Subject Year 8 Key stage 3
Year 9
Year 10 Bio/Phy
Yr 11 Bio
Science Courses this Year
Decisions about science courses
A-Level Biology
A Level Biology
*Attracted able/loss st.
*School ..... to not only get A/B
*Attractive option; hard work
*Physics seen as hard
Syllabus
1. Up to date? - changes frequently (LEB)
2. Jam packed
3. Not enough time
4. Moving away from contest recall
St. Reactions when T. brings them up
* mixed, same sparkle with interest
*doesn't involve/interest ALL
*Doesn't know who gets excited (e the ones who bring it up!
C.I.
Herself & C.I.
1. Not a worry
2. Must be well structured & directional
3. Not good at "ad " discus ion
4. Longer lesson must be d tailed
5. MUST be related to syllabus (said 3x) before she'll defend J.
6. Educationally, you can't knock it! but syllabus must be covered ⟶ TIME
7. I question what I do all the time
8. Don't get excited about green issues
9. Al. might give brief passing reference to
10. Idea - good brings biology into the real world, they learn for the future
11. For achers C.I. is difficult
12. Myself - I'm not immaginative, not clever like to follow text;
13. I like PRAC work - FUN
*Likes those more familiar but Physics is good after 72 on waves, it's OKAY electronics good Yr9
*Likes to feel secure in her teaching
Personal Aspects
*Driven by syllabus/time
*Concerned about her reputation
*Most finish course for students
*Good teacher = do we get through syllabus
*Allow interns to do C.I. and give them maximum flexibility
*I question what I do
*Not fully convinced of C.I.
Head of science
consult'n very brief
Others?
Keeping up to date
A-Level Student
School
1. No interference if related to syllabus
2. If there's a reason, it must be related to syllabus
Postulations about C.I.
1. If St. brought them in St. got to make informed choices
2. I learn from their attitudes.
3. Could learn biology - good
4. How I would/find out what they learnt ⟶ No answer
5. Re ll of C.I. ⟶ to give interest to the subject BUT FACTS then application nuts/bolts are essentials
6. Medical problems ⟶ haven't thought or can thing of that one!
7. Health care wouldn't get them excited/depends how it's put.
8. Green issues not that exciting.
9. Vegetarian appeal
10. If A-Level syllabus was more flexible ...all NB. Difficult to say.
11. Animal Exp - would get them going
Genetic Mat.
IVF, embroy
12. Rep Technolgoy - potentially forbid.
I don' know; I must teach biol. st & relate to the C.I.; rather than the other way around.
13. St. might not bring up ethics. ⟶ They're unworldly.
14. Good to see potential of st's.
15. St. don't let on everything ⟶ shy not confident
16. Some of the C.I. should be..... (Must check syllabus)
17. Medical problem ⟶ great way
18. Would like st. to use media more for this Biology.
19. C.I. the idea is interesting.
Criteria you have to be happy to teach all subjects
Organisation of courses Yr 8, Yr 9 Chem, Biol etc balance for st's rather than staff
*Weak area, I'm not up to date
*Modern texts (min source)
*Biol Science Review
*Not New Scientist
*J. Biol Ed'n
*Newspaper - just started
Normal Biology
1. Uses ideas from J. Biol Ed'n
2. C.I not maj part of her teaching
3. She doesn't bring them up unless they fit in, if in newspaper & out of context then not necessarily mentioned
4. Doesn't use anything sensational at start of lesson ⟶ relevance N.B. st get fidgety
5. Liberal attitude with respect to what St. can say in class
6. Drama/role play not done
7. Doesn't do exciting C.I. to get st's involved because it doesn't complete syllabus
8. Problem solving case St - a small extent
Not done
usual A-Level Biology
Drama teach - good
Role play - good
St. reaction -
Student learning
*how to talk/listen
*confidence
*learn from each other
*J. diff. views
*C.I. brought up by st's ⟶ Teacher gives time but brief because of syllabus drive
*Don't really bring them up
*Media coverage not high on their adjenda
*I don't know what sparks their interest
*Mixed ability st's encourageable/less st's
*St's tick things off on syllabus
*Thorough enjoy discussion /C.I. ⟶ involved (one instance)
*St. reflect parental views
*Not political; don't read papers "house bound"
Not done routinely
Past. C.I. topics GCSE/A-Level
*Environment - No
*Death/Dying - No
*IVF ... - A Level -Yes
*Organ T. -Yes
*Genetic Material - Yes
*Exp. with Animals -Yes
*Exp. with Embryo - No
*Vegetarianism - No
*Infertility - Yes
*Cost of Health Care - ..... - Yes
Reproach. Tech; - Yes Al?; - Yes Egg donation - Yes
Surrogacy - No; T Tube ...; - Yes A...ol
Parents; - Yes .....

Figure 2:

The Interview Map (from Pre-Lesson Interview 1 of Teacher C)

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